ARMOURED STERILIZATION CASE TRAY WITH INTERNAL WRAP/FILTER

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] Not applicable.

STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

[0002] Not Applicable

FIELD OF THE INVENTION

[0003] The present invention relates to sterilization container trays, especially trays for disinfection and sterilization of medical instruments.

BACKGROUND OF THE INVENTION

[0004] Rigid, reusable, sealed sterilization containers are known in the art as evidenced from U.S. Ser. No. 10/295,758; U.S. Ser. No. 10/070,621; U.S. Pat. No. 6,468,482; U.S. Pat. No. 6,589,477; U.S. Pat. No. 5,968,459; for example, all of which are incorporated herein in their entirety. These rigid, reusable, sealed containers are costly to manufacture and are therefore offered commercially in set sizes. At times, a device that requires sterilization and packaging does not fit the standard sized containers. Specialty sized rigid, reusable, sealed containers become prohibitively expensive and when not in use require excessive storage space.

[0005] As an alternative to the use of these expensive and space consuming specialty rigid reusable cases, placing the device or instrument into a tray and then wrapping the product in a disposable medical grade wrapper or muslin or other reusable wrap has been tried. Other alternatives that have been tried include using a peel pouch or a disposable bag. The devices to be sterilized are usually wrapped in double layers to avoid strike through and tears in the wrapping. FIGS. **1** and **2** demonstrate two typical wrapping techniques of this type. However, it has been noted that about 10% and possibly more of all instrument sets that are wrapped in such fashions require reprocessing due to torn or punctured wrappers, may result in wet packs, or have handling problems (since wrapped trays do not have handles for lifting and carrying), and the unwrapped trays are awkward to wrap and fasten.

[0006] Thus, there is a substantial unmet need in having an alternative to both the rigid, reusable, sealed container and to the commonly used wrapped tray with its associated handling and sterility maintenance issues.

OBJECTS OF THE INVENTION

[0007] It is therefore an object of the invention to provide a sterilization wrapping configuration that is readily adaptable to varied sized devices in need of sterilization.

[0008] It is another object of the invention to provide a sterilization wrapping configuration that has improved resistance to being pierced by the instruments being wrapped and sterilized.

[0009] Yet another object of the invention is to provide a sterilization tray that is rigid and can be easily wrapped.

[0010] Still further objects of the present invention will be appreciated by those of ordinary skill in the art.

BRIEF SUMMARY OF THE INVENTION

[0011] These and other objects of the invention are surprisingly achieved by a system utilizing (1) a perforated outer sterilization container, (2) a sterilant permeable, generally contaminant impermeable liner, (3) a perforated inner tray and (4) a lid, wherein the outer container and the inner tray are rigid, reusable members and the impermeable liner is located between the outer container and the inner tray. The liner extends sufficiently that after placing devices for sterilization into the tray, the liner can be folded over the rims of the inner tray to create a wrapped tray containing such instruments, and the lid is placed thereover to secure the wrapped tray in place. The closed unit can then be sterilized in conventional manners as desired, such as steam, gas, or plasma sterilization.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012] FIG. **1** depicts known square fold double wrapping.

[0013] FIG. **2** is depicts an alternative double wrapping technique.

[0014] FIG. **3** is a picture of an embodiment of the present invention in which the inner tray has already been wrapped.

[0015] FIG. **4** is an exploded view of one embodiment of the invention before wrapping of the inner tray.

[0016] FIG. **5** is a view of a hinged outer case for use in the present invention.

[0017] FIG. **6** is a view of a hinged case for use in the present invention wherein the outer lid is hinged to the rest of the case.

DETAILED DESCRIPTION OF THE INVENTION

[0018] The present invention is directed to a sterilization tray and system for disinfection of instruments and devices, most typically (but not limited to) medical, dental, laboratory, and veterinary instruments or devices requiring disinfection.

[0019] In its simplest form, the present invention requires an outer casing (**1**), a liner (**2**), an inner tray (**3**), and an outer casing lid (**4**). When in use, the liner (**2**) will be located between the outer casing (**1**) and the inner tray (**3**), and will of sufficient size that once the inner tray (**3**) is loaded with the object to be sterilized, the ends of the liner can be suitably folded over the rim of the inner tray (**3**) to enclose the inner tray (**3**) and its contents. The outer casing lid (**4**) is used to enclose the wrapped inner tray (**3**) within the outer casing (**1**). At least a portion of the outer casing (**1**) and outer casing lid (**4**) are permeable and preferably at least a portion of the outer casing (**1**) and outer casing lid (**4**) is perforated. The outer casing (**1**) may be perforated and the outer casing lid (**4**) may be solid; the outer casing lid (**4**) may be perforated and the sides or base of the outer case (**1**) may be solid, or both the outer case (**1**) and the outer case lid (**4**) may be perforated. In a preferred embodiment, at least one of the surfaces of the outer case (**1**) is perforated (i.e., one or more of the bottom and side walls of the outer case (**1**) is perforated); and in a highly preferred embodiment, all of the